| Exploring the Extreme | | | |
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| 2008 Mathematics | | | |
| Grade Level Articulations | | | |
| **Arizona Mathematics** | | | |
| **Grade K** | | | |
| **Activity/Lesson** | **State** | **Standards** | |
| Finding the Center of Gravity Using Rulers | AZ | MA.K.5.2.PO 1 | Identify the question(s) asked and any other questions that need to be answered in order to find a solution. |
| Finding the Center of Gravity Using Plumb Lines | AZ | MA.K.5.2.PO 1 | Identify the question(s) asked and any other questions that need to be answered in order to find a solution. |
| Changing the Center of Gravity Using Moment Arms | AZ | MA.K.5.2.PO 1 | Identify the question(s) asked and any other questions that need to be answered in order to find a solution. |
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| Exploring the Extreme | | | |
| 2008 Mathematics | | | |
| Grade Level Articulations | | | |
| **Arizona Mathematics** | | | |
| **Grade 1** | | | |
| **Activity/Lesson** | **State** | **Standards** | |
| Finding the Center of Gravity Using Rulers | AZ | MA.1.2.1.PO 1 | Collect, record, organize, and display data using tally charts or pictographs. |
| Finding the Center of Gravity Using Rulers | AZ | MA.1.5.2.PO 1 | Identify the question(s) asked and any other questions that need to be answered in order to find a solution. |
| Finding the Center of Gravity Using Plumb Lines | AZ | MA.1.4.4.PO 2 | Measure and compare the length of objects using the benchmark of one inch. |
| Finding the Center of Gravity Using Plumb Lines | AZ | MA.1.5.2.PO 1 | Identify the question(s) asked and any other questions that need to be answered in order to find a solution. |
| Changing the Center of Gravity Using Moment Arms | AZ | MA.1.2.1.PO 1 | Collect, record, organize, and display data using tally charts or pictographs. |
| Changing the Center of Gravity Using Moment Arms | AZ | MA.1.4.4.PO 2 | Measure and compare the length of objects using the benchmark of one inch. |
| Changing the Center of Gravity Using Moment Arms | AZ | MA.1.5.2.PO 1 | Identify the question(s) asked and any other questions that need to be answered in order to find a solution. |
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| Exploring the Extreme | | | |
| 2008 Mathematics | | | |
| Grade Level Articulations | | | |
| **Arizona Mathematics** | | | |
| **Grade 2** | | | |
| **Activity/Lesson** | **State** | **Standards** | |

| Activity/Lesson | State | Standards | |
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| Finding the Center of Gravity Using Rulers | AZ | MA.2.2.1.PO 1 | Collect, record, organize, and display data using pictographs, frequency tables, or single bar graphs. |
| Finding the Center of Gravity Using Rulers | AZ | MA.2.3.2.PO 1 | Describe a rule that represents a given relationship between two quantities using words or pictures. |
| Finding the Center of Gravity Using Rulers | AZ | MA.2.3.3.PO 2 | Compare expressions using spoken words and the symbols =, "is not equal to", <, and >. |
| Finding the Center of Gravity Using Rulers | AZ | MA.2.4.1.PO 1 | Describe and compare the attributes of polygons up to six sides using the terms side, vertex, point, and length. |
| Finding the Center of Gravity Using Plumb Lines | AZ | MA.2.4.1.PO 1 | Describe and compare the attributes of polygons up to six sides using the terms side, vertex, point, and length. |
| Changing the Center of Gravity Using Moment Arms | AZ | MA.2.3.2.PO 1 | Describe a rule that represents a given relationship between two quantities using words or pictures. |
| Changing the Center of Gravity Using Moment Arms | AZ | MA.2.4.1.PO 1 | Describe and compare the attributes of polygons up to six sides using the terms side, vertex, point, and length. |
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| **Exploring the Extreme** | | | |
| **2008 Mathematics** | | | |
| **Grade Level Articulations** | | | |
| **Arizona Mathematics** | | | |
| **Grade 3** | | | |
| **Activity/Lesson** | **State** | **Standards** | |
| Finding the Center of Gravity Using Rulers | AZ | MA.3.2.1.PO 1 | Collect, record, organize, and display data using frequency tables, single bar graphs, or single line graphs. |
| Finding the Center of Gravity Using Rulers | AZ | MA.3.5.2.PO 5 | Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. |
| Finding the Center of Gravity Using Plumb Lines | AZ | MA.3.5.2.PO 5 | Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. |
| Finding the Center of Gravity Using Plumb Lines | AZ | MA.3.5.2.PO 6 | Summarize mathematical information, explain reasoning, and draw conclusions. |
| Changing the Center of Gravity Using Moment Arms | AZ | MA.3.5.2.PO 5 | Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. |
| Changing the Center of Gravity Using Moment Arms | AZ | MA.3.5.2.PO 6 | Summarize mathematical information, explain reasoning, and draw conclusions. |
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| **Exploring the Extreme** | | | |
| **2008 Mathematics** | | | |
| **Grade Level Articulations** | | | |
| **Arizona Mathematics** | | | |
| **Grade 4** | | | |

| Activity/Lesson | State | Standards | |
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| Finding the Center of Gravity Using Rulers | AZ | MA.4.2.1.PO 1 | Collect, record, organize, and display data using double bar graphs, single line graphs, or circle graphs. |
| Finding the Center of Gravity Using Rulers | AZ | MA.4.2.3.PO 1.b | Construct tree diagrams to solve problems in context by explaining how its properties relate to the problem, |
| Finding the Center of Gravity Using Rulers | AZ | MA.4.3.1.PO 1 | Recognize, describe, create, extend, and find missing terms in a numerical sequence involving whole numbers using all four basic operations. |
| Finding the Center of Gravity Using Rulers | AZ | MA.4.3.2 | Describe and model functions and their relationships. |
| Finding the Center of Gravity Using Rulers | AZ | MA.4.3.4.PO 1 | Identify the change in a quantity over time and make simple predictions. |
| Finding the Center of Gravity Using Rulers | AZ | MA.4.4.4.PO 2 | Apply measurement skills to measure length, mass, and capacity using metric units. |
| Finding the Center of Gravity Using Plumb Lines | AZ | MA.4.3.2 | Describe and model functions and their relationships. |
| Finding the Center of Gravity Using Plumb Lines | AZ | MA.4.3.4.PO 1 | Identify the change in a quantity over time and make simple predictions. |
| Changing the Center of Gravity Using Moment Arms | AZ | MA.4.2.1.PO 1 | Collect, record, organize, and display data using double bar graphs, single line graphs, or circle graphs. |
| Changing the Center of Gravity Using Moment Arms | AZ | MA.4.3.1.PO 1 | Recognize, describe, create, extend, and find missing terms in a numerical sequence involving whole numbers using all four basic operations. |
| Changing the Center of Gravity Using Moment Arms | AZ | MA.4.3.2 | Describe and model functions and their relationships. |
| Changing the Center of Gravity Using Moment Arms | AZ | MA.4.4.4.PO 2 | Apply measurement skills to measure length, mass, and capacity using metric units. |
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| **Exploring the Extreme** | | | |
| **2008 Mathematics** | | | |
| **Grade Level Articulations** | | | |
| **Arizona Mathematics** | | | |
| **Grade 5** | | | |
| **Activity/Lesson** | **State** | **Standards** | |
| Jet Propulsion | AZ | MA.5.1.1.PO 5 | Use ratios and unit rates to model, describe and extend problems in context. |
| Jet Propulsion | AZ | MA.5.5.2.PO 6 | Summarize mathematical information, explain reasoning, and draw conclusions. |

| Jet Propulsion | AZ | MA.5.5.2.PO 7 | Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. |
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| Vectoring | AZ | MA.5.1.1.PO 5 | Use ratios and unit rates to model, describe and extend problems in context. |
| Vectoring | AZ | MA.5.4.1.PO 2 | Solve problems by understanding and applying the property that the sum of the interior angles of a triangle is 180°. |
| Vectoring | AZ | MA.5.4.4.PO 3 | Measure angles between 0 and 360 degrees. |
| Vectoring | AZ | MA.5.5.2.PO 6 | Summarize mathematical information, explain reasoning, and draw conclusions. |
| Vectoring | AZ | MA.5.5.2.PO 7 | Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. |
| Center of Gravity, Pitch, Yaw | AZ | MA.5.1.1.PO 1 | Determine equivalence by converting between benchmark fractions, decimals, and percents. |
| Center of Gravity, Pitch, Yaw | AZ | MA.5.5.2.PO 10 | Construct if… then statements to generalize rules for computation, geometric properties and algebraic functions. |
| Fuel Efficiency | AZ | MA.5.5.2.PO 7 | Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question. |
| Fuel Efficiency | AZ | MA.5.5.2.PO 10 | Construct if… then statements to generalize rules for computation, geometric properties and algebraic functions. |
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| **Exploring the Extreme** |
| **2008 Mathematics** |
| **Grade Level Articulations** |

| **Arizona Mathematics** | | | |
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| **Grade 6** | | | |
| **Activity/Lesson** | **State** | **Standards** | |
| Jet Propulsion | AZ | MA.6.1.2.PO 5 | Provide a mathematical argument to explain operations with two or more fractions or decimals. |
| Jet Propulsion | AZ | MA.6.2.2.PO 1 | Use data collected from multiple trials of a single event to form a conjecture about the theoretical probability. |
| Jet Propulsion | AZ | MA.6.5.2.PO 1 | Analyze a problem situation to determine the question(s) to be answered. |
| Jet Propulsion | AZ | MA.6.5.2.PO 9 | Solve simple logic problems, including conditional statements, and justify solution methods and reasoning. |
| Vectoring | AZ | MA.6.1.2.PO 5 | Provide a mathematical argument to explain operations with two or more fractions or decimals. |
| Vectoring | AZ | MA.6.5.2.PO 1 | Analyze a problem situation to determine the question(s) to be answered. |
| Center of Gravity, Pitch, Yaw | AZ | MA.6.1.1.PO 4 | Compare and order integers; and positive fractions, decimals, and percents. |

| Activity/Lesson | State | Standards | |
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| Center of Gravity, Pitch, Yaw | AZ | MA.6.1.3.PO 2 | Make estimates appropriate to a given situation and verify the reasonableness of the results. |
| Center of Gravity, Pitch, Yaw | AZ | MA.6.4.4.PO 1 | Determine the appropriate unit of measure for a given context and the appropriate tool to measure to the needed precision (including length, capacity, angles, time, and mass). |
| Center of Gravity, Pitch, Yaw | AZ | MA.6.4.4.PO 3 | Estimate the measure of objects using a scale drawing or map. |
| Fuel Efficiency | AZ | MA.6.1.3.PO 2 | Make estimates appropriate to a given situation and verify the reasonableness of the results. |
| Fuel Efficiency | AZ | MA.6.3.3.PO 4 | Evaluate an expression involving the four basic operations by substituting given fractions and decimals for the variable. |
| Fuel Efficiency | AZ | MA.6.5.2.PO 7 | Isolate and organize mathematical information taken from symbols, diagrams, and graphs to make inferences, draw conclusions, and justify reasoning. |
| Fuel Efficiency | AZ | MA.6.5.2.PO 9 | Solve simple logic problems, including conditional statements, and justify solution methods and reasoning. |
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| **Exploring the Extreme** | | | |
| **2008 Mathematics** | | | |
| **Grade Level Articulations** | | | |
| **Arizona Mathematics** | | | |
| **Grade 7** | | | |
| **Activity/Lesson** | **State** | **Standards** | |
| Jet Propulsion | AZ | MA.7.5.2.PO 6 | Communicate the answer(s) to the question(s) in a problem using appropriate representations, including symbols and informal and formal mathematical language. |
| Jet Propulsion | AZ | MA.7.5.2.PO 7 | Isolate and organize mathematical information taken from symbols, diagrams, and graphs to make inferences, draw conclusions, and justify reasoning. |
| Jet Propulsion | AZ | MA.7.5.2.PO 9 | Solve logic problems using multiple variables and multiple conditional statements using words, pictures, and charts. |
| Vectoring | AZ | MA.7.5.2.PO 6 | Communicate the answer(s) to the question(s) in a problem using appropriate representations, including symbols and informal and formal mathematical language. |
| Vectoring | AZ | MA.7.5.2.PO 7 | Isolate and organize mathematical information taken from symbols, diagrams, and graphs to make inferences, draw conclusions, and justify reasoning. |

| Activity/Lesson | State | Standards | |
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| Vectoring | AZ | MA.7.5.2.PO 9 | Solve logic problems using multiple variables and multiple conditional statements using words, pictures, and charts. |
| Center of Gravity, Pitch, Yaw | AZ | MA.7.1.2.PO 2 | Solve problems with rational numbers and appropriate operations using exact answers or estimates. |
| Center of Gravity, Pitch, Yaw | AZ | MA.7.1.3.PO 2 | Make estimates appropriate to a given situation. |
| Center of Gravity, Pitch, Yaw | AZ | MA.7.4.4.PO 7 | Measure to the appropriate degree of accuracy and justify reasoning. |
| Fuel Efficiency | AZ | MA.7.1.2.PO 2 | Solve problems with rational numbers and appropriate operations using exact answers or estimates. |
| Fuel Efficiency | AZ | MA.7.1.3.PO 2 | Make estimates appropriate to a given situation. |
| Fuel Efficiency | AZ | MA.7.5.2.PO 9 | Solve logic problems using multiple variables and multiple conditional statements using words, pictures, and charts. |
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| **Exploring the Extreme** | | | |
| **2008 Mathematics** | | | |
| **Grade Level Articulations** | | | |
| **Arizona Mathematics** | | | |
| **Grade 8** | | | |
| **Activity/Lesson** | **State** | **Standards** | |
| Jet Propulsion | AZ | MA.8.5.2.PO 6 | Communicate the answer(s) to the question(s) in a problem using appropriate representations, including symbols and informal and formal mathematical language. |
| Jet Propulsion | AZ | MA.8.5.2.PO 7 | Isolate and organize mathematical information taken from symbols, diagrams, and graphs to make inferences, draw conclusions, and justify reasoning. |
| Jet Propulsion | AZ | MA.8.5.2.PO 10 | Solve logic problems involving multiple variables, conditional statements, conjectures, and negation using words, charts, and pictures. |
| Vectoring | AZ | MA.8.5.2.PO 6 | Communicate the answer(s) to the question(s) in a problem using appropriate representations, including symbols and informal and formal mathematical language. |
| Vectoring | AZ | MA.8.5.2.PO 10 | Solve logic problems involving multiple variables, conditional statements, conjectures, and negation using words, charts, and pictures. |
| Center of Gravity, Pitch, Yaw | AZ | MA.8.1.2.PO 1 | Solve problems with factors, multiples, divisibility or remainders, prime numbers, and composite numbers. |

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| Center of Gravity, Pitch, Yaw | AZ | MA.8.1.2.PO 3 | Solve problems involving percent increase, percent decrease, and simple interest rates. |
| Center of Gravity, Pitch, Yaw | AZ | MA.8.1.3.PO 1 | Make estimates appropriate to a given situation. |
| Center of Gravity, Pitch, Yaw | AZ | MA.8.1.3.PO 2 | Estimate the location of rational and common irrational numbers on a number line. |
| Center of Gravity, Pitch, Yaw | AZ | MA.8.3.4.PO 2 | Solve problems involving simple rates. |
| Fuel Efficiency | AZ | MA.8.1.2.PO 1 | Solve problems with factors, multiples, divisibility or remainders, prime numbers, and composite numbers. |
| Fuel Efficiency | AZ | MA.8.1.3.PO 1 | Make estimates appropriate to a given situation. |
| Fuel Efficiency | AZ | MA.8.1.3.PO 2 | Estimate the location of rational and common irrational numbers on a number line. |
| Fuel Efficiency | AZ | MA.8.3.1.PO 1 | Recognize, describe, create, and analyze numerical and geometric sequences using tables, graphs, words, or symbols; make conjectures about these sequences. |
| Fuel Efficiency | AZ | MA.8.3.2.PO 1 | Sketch and interpret a graph that models a given context; describe a context that is modeled by a given graph. |